UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,168	03/17/2004	Yoshiteru Tsuchinaga	FUJY 21.045	4144

26304 7590 11/19/2009

KATTEN MUCHIN ROSENMAN LLP
575 MADISON AVENUE
NEW YORK, NY 10022-2585

EXAMINER	
HAN, QI	

ART UNIT	PAPER NUMBER
2626	

MAIL DATE	DELIVERY MODE
11/19/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/802,168	TSUCHINAGA ET AL.	
	Examiner	Art Unit	
	QI HAN	2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5,6,8 and 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5,6,8 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *06/15/2009*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Information Disclosure Statement

2. The references listed in the Information Disclosure Statement submitted on 06/15/2009 and 01/18/2005 have been considered by the examiner (see attached PTO-1449).

Response to Amendment

3. This communication is responsive to the applicant's amendment dated 08/06/2009. The applicant(s) amended claims 1, 3, 5-6, 8 and 10, and cancelled claims 2, 4, 7 and 9 (see the amendment: pages 2-6).

Response to Arguments

4. Applicant's arguments filed on 08/06/2009 with respect to the claim rejection under 35 USC 103, have been fully considered but are moot in view of the new ground(s) of rejection, since the amended claims introduce new issue/matter, which change the scope of the claims.

It is noted that the response to the applicant's arguments based on the newly amended claims (see Remarks: pages 9-12) is directed to the claim rejection with necessitated new ground(s) (see below).

It is also noted that the previous cited references are still applicable to the prior art rejection (with newly combined teachings and/or interpretations) for the amended claims having new ground (see detail rejection below).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 1, 3, 5-6, 8 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, the amended limitation of performing "judgment processing" and "embedding processing" and "wherein the embedding judgment unit performs the judgment processing based on the past speech code **after completion of the embedding processing** performed by the embedding unit" is indefinite, because it is not consistent with the disclosure of the specification (Fig. 14), which clearly shows an encoder structure (data embedding device) in that the element of "embedding judgment (control) unit" is included within the element of "embedding (processing) unit", so that judgment processing and embedding processing are all performed within the embedding (processing) unit with mixed processes (no specific judgment processing after embedding processing as claimed). Further, the limitation is logically confused/incorrect because, in normal operation (even if there is some processing order), making a decision of whether and/or how to use embedding data is generally performed **before** the

corresponding embedding processing is executed, which is common knowledge in the art and conflicts with the claimed limitation.

Regarding claim 3, the amended limitation of "wherein the past speech code is identical to a past speech code which was used for judging whether the speech code is capable of embedding data" is indefinite, because it is unclear/confused that what relationship really is between "a past speech code which was used for judging …" and other speech code(s). Further, it does not make sense to the examiner that "**the** past speech code is **identical** to **a past speech code** which was used for judging…", since "every speech code" is used for judging, according to the claim.

Regarding claims 5-6, 8 and 10, the rejection is based on the same reason described for claims 1 and/or 3, because the claims include, at least one of the same or similar problematic limitations as claims 1 and/or 3.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 3, 5, 8 and 10 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Regarding claim 3, the amended limitation of "wherein the past speech code is identical to a past speech code which was used for judging whether the speech code is capable of embedding data" introduces new subject matter, because the limitation is not specifically described in the original specification. Further, the applicant failed to provide reference(s) in the specification to show where the amended limitation came from.

Regarding claims 5, 8 and 10, the rejection is based on the same reason described for claim 3, because the claims include the same or similar problematic limitations as claim 3.

Claim Rejections - 35 USC § 103

7. Claims 1, 3, 5-6, 8 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by GOPALAN et al. (US 2003/0176934 A1) hereinafter referenced as GOPALAN in view of WU et al. ("Fragile speech watermarking based on exponential scale quantization for temper detection", Acoustics, Speech , and Signal Processing, 2002, Proceeding IEEE international conference) hereinafter referenced as WU.

As per **claim 1**, as best understood in view of the rejection under 35 USC 112 2nd (see above), GOPALAN discloses 'method and apparatus for embedding data in audio signals' (title), for 'Linear Predictive Code (LPC)-10 model (speech encoding/decoding method including coding/decoding speech code)' (p(paragraph) 25), comprising:

"an embedding judgment unit, for every speech code, to perform judgment processing to judge whether or not a speech code is capable of embedding data based on a line(a)r spectrum [pair (LSP) code], a pitch lag code, [a fixed code and a gain code] included in a [past] speech code output from a [code excited] linear prediction encoder" (Fig. 1 and p12, mechanism for

'computing the masker frequencies and their power levels on frame-to-frame (corresponding to every speech code) basis; determining (perform judgment processing) a global threshold of hearing at each said masker frequency... obtaining the sound pressure level for quiet, below which a signal is inaudible (to judge whether or not a speech code is capable of embedding data)'; p25, 'Linear Predictive Code (LPC)-10 model (inherently including liner spectrum and pitch codes as its parameters)'; also see Fig. 1, '155', p22); and

"an embedding unit to perform embedding processing to embed data to be embedded in a part of [a LSP code], a pitch lag code [and a fixed code], defined as embedding object parameter codes, among a speech code for which it is judged by the embedding judgment unit that a speech code is capable of embedding data, wherein the embedding unit replaces the embedding object parameter codes with the data to be embedded", (p10, a mechanism for 'embedding (perform embedding processing) binary data (embedding data) in audio signal', 'the magnitude (parameter coder corresponding to embedding object parameter codes) of the power spectrum at the perceptual holes of each frame of a host speech utterance' and 'phase spectrum (parameter code) at perceptually masked spectral points of each frame of a host speech utterance', 'may be altered (replaced) so as to embed digital data'; p25, 'Linear Predictive Code (LPC)-10 model', 'DCT' and Fourier-Bessel coefficients (each of them corresponds a parameter code), may be used for embedding'; p5, 'replacement of spectral components…with the sequence to be embedded'; also see Fig. 1, p23 and p26-p27).

GOPALAN does not expressly disclose a **past** speech code. However, it is noted that, as stated above, GOPALAN discloses '**replacement** of spectral components (corresponding to the embedding object parameter codes) …with the sequence (corresponding the data) to be

embedded' (p5) and using LPC-10 model for embedding (p23), so that one of ordinary skill in that would have readily recognized that these teachings would suggest that there would be a past speech code (in a broad sense) first and then use it for the replacement, and the LPC-10 model could be used for providing the past speech code, which would be within the scope of capability of the skilled person in the art and the result would be predicable.

Further, GOPALAN does not expressly "a code excited linear prediction (CELP) encoder" with the parameter codes of "an LSP code", "a fixed code" and "a gain code" for embedding. However, the feature of embedding data in CELP encoders is well known in the art as evidenced by WU who discloses algorithms of embedding watermark data in certain regions, such as selected frequency components and/or compression coefficients, including part of coefficients of CELP coders, such as 'LSP coefficients and the lag of pitch' among all coefficients of G.327.1 and GSM-AMR (page 3306, right column, p1-p3 and page 3307, left column, p2). One of ordinary skill in the art would have readily recognized that CELP (such as G.327.1 or GSM-AMR standards) coder (encoder) would have inherently include fixed code and gain code among its parameter codes, and portions of these CELP parameter codes (such as LSP coefficients, pitch lag, fixed code and gain code) would be used for embedding data including but not limited in watermark data, because embedding different data in different parameter codes would be based on the same/common principle that would preserve both perceptively high quality on embedded data (such as speech) and high integrity on embedding data (such as watermarks). Further, one of ordinary skill in the art would have recognized that the CELP coder of WU (page 3306, right column, p2) is later developed version of Linear Predictive Code (LPC) coder of GOPALAN (p25), and both parameters of power amplitude spectrum in

GOPALAN and LSP coefficients in WU would reflect the same acoustic characteristic of speech (i.e. vocal track characteristic), so that combination of teachings (including inherent the feature) GOPALAN and WU would be obviously within the capability/knowledge of the ordinary skilled person, and the result would be predictable when using the CELP coder instead of LPC-10 coder and using LSP coefficients instead of amplitude of power spectrum (or Fourier-Bessel coefficients, GOPALAN: p25). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify GOPALAN by providing embedding data by using CELP coder with its parameters (such as portion of LSP, pitch, gain code, fixed code), as taught/suggested by WU, for the purpose (motivation) of providing transparent authentication with performing content preserving operation and/or using suitable (such as stable) coefficients for embedding data applications (WU: abstract; page 3306, right column, p2).

Regarding the limitation "wherein the embedding judgment unit performs the judgment processing based on the past speech code **after completion of the embedding processing** performed by the embedding unit", as best understood in view of the rejection under 35 USC 112 2nd (see above), the confused limitation is broadly interpreted as judgment processing and embedding processing are performed in some order, which is met by the teachings of GOPALAN in view of Wu, such as determining (perform judgment processing) a parameter below some threshold which a signal is inaudible and then performing data embedding, as stated above.

As per **claim 3**, it recites a data extraction device that simply performs the reversed operations of claim 1. The rejection is based on the same reason described for claim 1, because it also reads on the limitations of claim 3, as best understood in view of the rejection under 35 USC

112 1st and 2nd (see above), wherein the amended limitation of "wherein the past speech code is identical to a past speech code which was used for judging whether the speech code is capable of embedding data" is interpreted as recovering embedded data using received signal/codes that is taught by GOPALAN (Fig. 1, '200-220').

As per **claim 5**, it recites a data embedding/extraction device. The rejection is based on the same reason described for claims 1 and 3, because the claim recites the same or similar limitation(s) as claims 1 and 3.

As per **claims 6, 8 and 10**, they recite methods. The rejection is based on the same reason(s) described for apparatus claims 1, 3 and 5 respectively, because the method claims and apparatus claims are related as apparatus and method of using same, with each claimed element's function corresponding to the claimed method step.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Please address mail to be delivered by the United States Postal Service (USPS) as follows:

Mail Stop ____
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

or faxed to: 571-273-8300, (for formal communications intended for entry)

Or: 571-273-8300, (for informal or draft communications, and please label "PROPOSED" or "DRAFT")

If no Mail Stop is indicated below, the line beginning Mail Stop should be omitted from the address.

Effective January 14, 2005, except correspondence for Maintenance Fee payments, Deposit Account Replenishments (see 1.25(c)(4)), and Licensing and Review (see 37 CFR 5.1(c) and 5.2(c)), please address correspondence to be delivered by other delivery services (Federal Express (Fed Ex), UPS, DHL, Laser, Action, Purolater, etc.) as follows:

U.S. Patent and Trademark Office
Customer Window, Mail Stop _____
Randolph Building
Alexandria , VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to QI HAN whose telephone number is (571)272-7604. The examiner can normally be reached on M-TH:9:00-19:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571)-272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

QH/qh
November 18, 2009
/QI HAN/
Primary Examiner, Art Unit 2626